

“I have plenty of *elliotti* and will give you each a set.” And so it was. And he gave us sets and sets, and we had to leave before he got through. But most highly prized of all he gave each of us a book entitled, “Geografia de la Isla de Cuba por Alfredo M. Aguayo y Carlos de la Torre y Huerta,” and inscribed, “A guide for your future excursions and a souvenir from your friend, Dr. Carlos de la Torre.” It is a book of 210 pages with many illustrations and is used in the schools of Cuba. Nearly all the places we visited are described and pictured.

In closing we give a few lasting impressions: The royal palms, dominant everywhere, the poverty of the people in the country, poor huts, dirt floors, naked children, pigs tied up to graze, drinking water hauled up from the river in a barrel and often standing in the sunshine. The kindness and hospitality of everyone, trying their best to do all in their power to guide and help you, “Americano” though you be. The highways are arched with acacias, ceibas, ficus, etc., underneath which your car glides through a shady tunnel; but from a height as you look back, you see the embowered road, a huge green serpent winding through the landscape.

It was a wonderful trip and long to be remembered, but we know three Americanos who are glad to be back in the U. S. A. And we all have his promise that Dr. Carlos de la Torre will visit us next time he comes hither. This promise and the shells we have will be an inspiration to us for years to come.

September 1, 1926.

THE NOMENCLATURE OF THE SUPERSPECIFIC GROUPS OF *CORBULA*
IN THE LOWER MIOCENE OF FLORIDA

BY JULIA GARDNER¹

Bruguière in 1798 published in the *Encyclopédie Méthodique*, a plate of eighteen figures which he headed *Corbula*. He used no specific names but his figures have been identified as follows:

¹ Published by permission of the Director U. S. Geol. Survey.

² Bruguière, J. G.: *Tableau Encyclopédique et Méthodique*, Paris, 1797, 1798.



1a-c.—*Corbula sulcata* Lamarck (= *Corbula guineensis* Muhl-
feldt).

2a-c.—An indeterminate bivalve, probably a *Chama*.

3a-c.—*Corbula porcina* Lamarck. Not identified with assurance. Possibly a varietal form of *C. gibba* (Olivi) from the Mediterranean; more probably an exotic, cf. *C. acutangula* Issel, from the Red Sea.¹

4a-d.—*Corbula nucleus* Lamarck (= *Corbula gibba* [Olivi]). Recent on the west coast of Europe and in the Mediterranean; Tertiaries of southern Europe.

5a-c.—*Corbula gallica* Lamarck. Eocene of the Paris Basin.

6a-b.—*Corbula margaritacea* Lamarck (= *Anatina trapezoides* Lamarck).

Lamarck determined most of the species on the original plate but cited no type. There is a reference to the plate in the Pro-drome,² 1799, but no species is mentioned. The first specific list which appeared in the Système,³ 1801, included *Corbula sulcata*, *Corbula laevigata*, *Corbula margaritacea*, *Corbula gallica* and *Corbula striata*. *Corbula nucleus* was added in 1818 in the Histoire Naturelle.⁴ There is apparently no record of the selection of a type before the anonymous publication of Lamarck's Genera of Shells in 1822. This publication was later fixed upon Children and in it, he definitely designated *Corbula nucleus* Lamarck (= *Corbula gibba* [Olivi]) as the type of the genus.⁵

This is at variance with the common usage and involves a realignment of the super-specific groups. The long synonymy of *Corbula gibba* testifies to its wide range and great variability. The type of the species according to Bucquoy, Dautzenberg and

¹ Bucquoy, E., Dautzenberg, Ph., Dollfus, Gustave F.: Mollusques marins du Roussillon, vol. 2, pp. 582, 587, 1896.

² Lamarck, J. B.: Mémoires Société d'Histoire Naturelle, Paris: Pro-drome d'une Nouvelle Classification des Coquilles, p. 89, 1799.

³ Lamarck, J. B.: Système des Animaux sans Vertèbres, p. 137, 1801.

⁴ Lamarck, J. B.: Histoire Naturelle des Animaux sans Vertèbres, vol. 5, p. 496, 1818.

⁵ Children, J. G.: Quart. Jour. Sci. Lit. and Art, Roy. Inst., vol. xiv, p. 301, 1822.

Dollfus probably came from the Adriatic. The Mediterranean shells, as a rule, are not so large as those from the British waters. The species is characterized by the unequal, discrepantly sculptured valves; the right valve, the larger, relatively higher and more trigonal in outline, obtusely rostrate posteriorly, concentrically rugose; the left valve smaller, transversely elongate, not rostrate posteriorly, with a sparse and irregular radial lineation and the concentric sculpture restricted largely to the ventral area. These are the characters which, at least in the East Coast Tertiary and Recent faunas, have been commonly associated with *Aloidis*. Cossmann, Gray, and some of the other Europeans have included such forms under *Agina* Turton,¹ and have cited as the type of *Agina*, *Mya inæquivalvis* Montagu (= *Corbula gibba* [Olivi]). *Agina*, however, is monotypic and the type, *Mya purpurea* Montagu, is a *Saxicava*, probably *S. arctica* (Linnæus), so that *Agina* falls into the synonymy of *Saxicava* rather than of *Corbula*.

Aloidis Muhlfeldt² is also monotypic. The type, *Corbula sulcata* Lamarek, a recent shell from the coast of Senegal (figs. 1a-c on Bruguiere's original plate), has been considered by Gray,³ Fischer,⁴ Cossmann,⁵ Bucquoy, Dautzenberg and Dollfuz, Woodring,⁶ and others as the type of the genus *Corbula*. The species is not represented in the collections of the U. S. National Museum, but through the courtesy of the Academy of Natural Sciences, Philadelphia, the loan of good adult material has been obtained. The shell is large and coarse, the altitude

¹ Turton, Wm.: *Conchylia Insularum Britannicarum*. Dithyra, p. 54, 1822.

² Muhlfeldt, Megerle von: *Magazin der Gesellschaft Naturforschende Freunde*, 5 Jahr., *Entwicklung eines neuen System der Schalthiergehäuse*, p. 67, 1811.

³ Gray, J. E.: *Proc. Zoological Society, London*, vol. xv, p. 191, 1847.

⁴ Fischer, Paul: *Manuel de Conchyliologie et de Paléontologie Conchyliologique*, p. 1123, 1887.

⁵ Cossmann, M.: *Catalogue Illustré des Coquilles Fossiles de l'Eocene des Environs de Paris*, App. 5, p. 15, 1913.

⁶ Woodring, W. P.: *Contributions to the Geology and Paleontology of the West Indies, Miocene Mollusks from Bowden, Jamaica: Carnegie Publication No. 366*, p. 185, 1925.

of the right valve is 19.0 millimeters, the latitude 25.0 millimeters, the altitude of the left valve 15.5 millimeters, the latitude 23.0 millimeters, the diameter of the double valves 15.5 millimeters. The posterior keel is very sharp and defined posteriorly by a deep sulcus which persists from the nepionic shell to the margin. Both valves are coarsely rugose, the sculpture upon the right valve heavier than upon the left. Radial sculpture is absent upon the conch. The tips of the umbones are conspicuously capped by the nepionic valves which differ from the adult to a remarkable degree. They are nearly equivalve, compressed, acutely rostrate posteriorly, and similarly sculptured with concentric rugae which strengthen toward the ventral margin. These are characters which suggest the *Cuneocorbula* of common parlance rather than *Aloidis*. As a matter of fact, there are no East American shells sufficiently close to the large, coarse, Senegalese shell to suggest the representation of the *C. sulcata* group in East American waters either in Tertiary or in Recent times. The species formerly referred to *Aloidis* by American conchologists are included under *Corbula* s. s.

Caestocorbula Vincent,¹ type *Corbula henckeliusi* Nyst, is also a synonym of *Corbula* s. s. *Caestocorbula* was founded upon the supposed presence of a siphonal plate. The nature of the plate and the mode of attachment are not obvious from the description or the figure, but the plate is either quite foreign to the shell or a fortuitous character resulting possibly from some of the peculiar breakage phenomena that the *Corbulae* occasionally show.

*Cuneocorbula*² was erected by Cossman to include transversely elongated birostrate shells headed by *Corbula biangulata* Deshayes (Eocene of the Paris Basin) as the type of the subgenus. *Corbula biangulata* is a small thin shell, much produced posteriorly, strongly bicarinate, feebly and irregularly sculptured and with little more than generic characters to ally it with the forms with which it has been commonly associated by most of the

¹ Vincent, E.: Annales de la Societe Royale Zoologique et Malacologique, vol. 44, p. 141, 1910.

² Cossman, M.: Catalogue Illustre des Coquilles Fossiles de l'Eocene des Environs de Paris, vol. 1, p. 37, 1886.

American conchologists. There seems to be no subgenus available to which these small sub-equivalve, biconvex, transversely elongate, posteriorly rostrate, concentrically sculptured *Corbulae*, so common throughout the East Coast and Gulf Tertiaries and in the Recent East American waters, may be referred. A new subgenus, *Caryocorbula*, is proposed below for the accommodation of this group.

Bicorbula Fischer¹ is monotypic and the type is *Corbula gallica* Lamarck. Fischer accepted *Corbula sulcata* Lamarck as the type of the genus and established *Bicorbula* to include the large, subtrigonal, obtusely or not at all rostrate, and, for the most part, feebly sculptured shells. An obscure radial lineation is frequently developed on the right valve, more obvious, as a rule, in the decorticated shell. Dall and others who considered *Corbula gallica* as the type of *Corbula* s. s. could not, of course, recognize *Bicorbula* but if *Corbula gibba* is accepted as the type of *Corbula* s. s., *Bicorbula* must be reinstated.

Bothrocorbula Gabb² characterized by the deep lunular pit beneath the beaks, retains its status unchanged. The monotype is *Corbula viminea* Guppy from the Miocene (Bowden Beds) of Jamaica.

The skeleton of the lower Miocene *Corbulae* of Florida may then be defined as follows:

CORBULA s. s.

Aloidis auctores: not *Aloidis* Mühlfeldt,³ 1811. *Agina* Turton,⁴ 1822. *Caestocorbula*, Vincent,⁵ 1909.

Type.—*Corbula gibba* (Olivi) Recent on the west Coast of

¹ Fischer, Paul: Manuel de Conchyliologie et de Paléontologie Conchyliologique, p. 1123, 1887.

² Gabb, Wm. M.: Proc. Academy Natural Sciences Philadelphia, p. 274, 1872.

³ Mühlfeldt, Megerle von: Magazin der Gesellschaft Naturforschende Freunde, 5 Jahr., Entwicklung eines neuen System der Schalthiergehäuse, p. 67, 1811.

⁴ Turton, Wm.: Conchyliæ Insularum Britannicarum, Dithyra, p. 54, 1822.

⁵ Vincent, E.: Annales de la Societe Royale Zoologique et Malacologique, vol. 44, p. 141, 1910.

Europe and in the Mediterranean; Tertiaries of southern Europe.

Shell rather small, inequivalvate, inequilateral, discrepantly sculptured even in the juvenile stages; the right valve, the larger, relatively higher and more trigonal in outline, obtusely rostrate posteriorly, concentrically rugose; the left valve smaller, transversely elongate, not rostrate posteriorly, with a sparse and irregular radial lineation and a concentric sculpture restricted largely to the ventral area.

CARYOCORBULA, new subgenus.

Cuneocorbula Dall et auctores: not *Cuneocorbula* Cossman, 1886.

Type.—*Corbula alabamiensis* Isaac Lea. Claiborne Eocene of the East Coast and Gulf from South Carolina to the Rio Grande.

Shell small or of moderate dimensions; acutely keeled posteriorly; slightly inequivalvate; the right valve a little larger and a little higher relatively than the left; both valves concentrically rugose, the sculpture upon the right valve in some species stronger and more regular than upon the left; a microscopically fine radial lineation developed in some of the later species, particularly upon the posterior keel; ligament, dental, muscle and sinal characters similar to those of *Corbula* s. s.

Caryocorbula includes the majority of the American species hitherto assigned to *Cuneocorbula*. *Caryocorbula* differs from the Paris Basin group in the less trigonal shell, not so produced posteriorly, usually heavier, uni- rather than birostrate and more strongly sculptured. *Caryocorbula* is abundantly represented in the Tertiary and Pleistocene deposits of the East Coast and Gulf and in the Recent East American waters.

BICORBULA Fischer.¹

Type.—*Corbula gallica* Lamarck (Eocene of the Paris Basin).

Shell large, inequivalve; the right valve the larger and higher; the left valve ovate-trigonal in outline; posterior keel obsolete

¹Fischer, Paul: Manuel de Conchyliologie et de Paléontologie Conchyliologique, p. 1123, 1887.

or obscure on both valves; concentric sculpture feeble and irregular; a fortuitous radial lineation frequently developed on the left valve, most obvious on the decorticated shell; ligament pit profound; anterior cardinal prominent, the posterior not developed; an incipient pallial sinus usually developed.

BOTHROCORBULA Gabb.¹

Type.—*Bothrocorbula viminea* Guppy (Miocene of the Bowden beds of Jamaica).

Shell moderately large and heavy, transversely ovate in outline, slightly inequivalve, acutely rostrate posteriorly; a coarse concentric corrugation and an inconstant radial striation developed on both valves; deep lunular depression in front of the umbones, the characteristic feature of the group; hinge heavy but otherwise normal.

LAND SHELLS FROM AROUND FOUL RIFT, DELAWARE RIVER

BY E. G. VANATTA

During July and August, 1925 and 1926, Mr. James B. Clark collected the following species of land shells along both sides of a section of the Delaware River known as Foul Rift. It is interesting to note the presence of *Guppya sterkii* Dall in this region, also a specimen of *Polygyra tridentata* Say with two parietal teeth.

The following species were taken in Northampton County, Pennsylvania, near Foul Rift, N. J.:

<i>Polygyra albolabris</i> Say	<i>Gastrocopta contracta</i> Say
<i>Polygyra thyroides</i> Say	<i>Gastrocopta pentodon</i> Say
<i>Polygyra tridentata juxtidentis</i> Pils.	<i>Gastrocopta corticaria</i> Say
<i>Polygyra hirsuta</i> Say	<i>Vertigo gouldi</i> Binn.
<i>Polygyra fraterna</i> Say	<i>Cochlicopa lubrica</i> Müll.
	<i>Polita hammonis</i> Ström

¹Gabb, Wm. M.: Proc. Academy Natural Sciences Philadelphia, p. 274, 1872.